

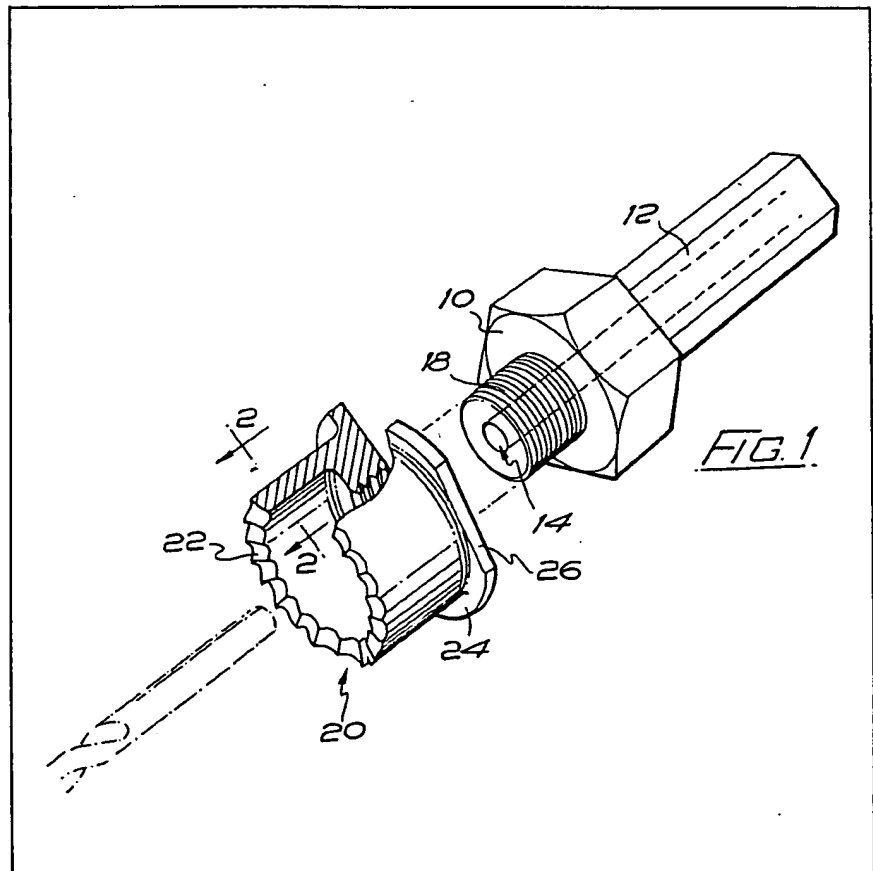
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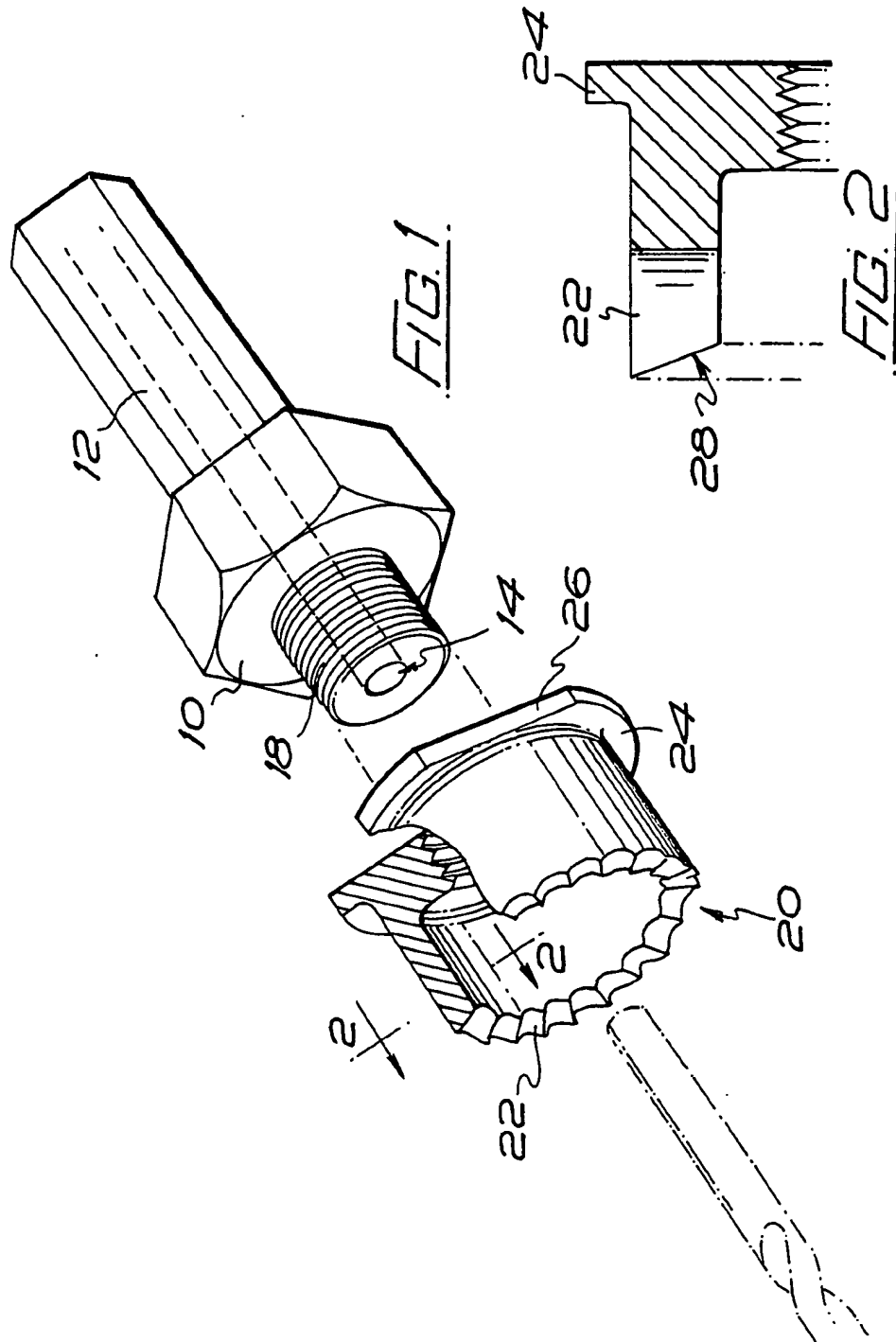
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(54) Hole cutter

(57) A hole cutter of the kind which is used in conjunction with a twist drill to produce a larger hole in a thin panel. So that on breaking through the

thin panel the cutter element 20 cannot go straight through to become fast in the hole, there is an abutment surface in the form of an annular collar 24 provided with flats 26. The cutter has serrated teeth 22.





SPECIFICATION

Hole cutter

The invention relates to a so-called hole cutter of the kind which is used in conjunction with a

- 5 twist drill to produce a somewhat larger hole in a thin panel, for example in the ducting for electric cables or in the sheet metal of a motor car body for the fitment of a radial aerial or a wing mirror.
- Such hole cutters are well known and generally
- 10 include a body part or head provided with a shank portion by means of which it can be mounted in the chuck of a power tool, the body part or head being capable of being fitted with a twist drill and having a screwthreaded spigot portion for the
- 15 attachment of a cylindrical cutter element with serrated teeth in an annular end surface. However, hole cutters of this kind suffer from certain drawbacks. For example, on breaking through sheet metal the cylindrical cutter element can go
- 20 straight through so that the tool becomes fast in the hole and can only be extracted with some difficulty. Furthermore, if the cutter is being used to cut a hole in ducting for electric cables the action of breaking through the sheet metal can
- 25 cause inadvertent damage to the cables within the ducting and can of course be a serious safety hazard if the cables are live. A further disadvantage of known hole cutters is that the waste core of metal can sometimes become
- 30 jammed in the cylindrical cutter element.

It is the object of the invention to provide a hole cutter in which the difficulties referred to above are at least partially alleviated.

- According to the invention, there is provided a
- 35 hole cutter including a body part or head having a shank portion by means of which it can be mounted in the chuck of a power tool, the body part or head being capable of being fitted with a twist drill and having a screwthreaded spigot
- 40 portion for the attachment of a cylindrical cutter element also forming a part of the tool, the cylindrical cutter element being provided with serrated teeth in an annular end surface remote
- 45 from the shank portion of the body part or head, there being an abutment surface in the form of a raised shoulder stepped back from the serrated annular end surface. The abutment surface may be
- 50 formed by an annular collar surrounding the cylindrical cutter element at its end remote from the serrated teeth, said collar preferably being provided with opposed flats.

- In order that the invention may be fully understood and readily carried into effect, the same will now be described, by way of example
- 55 only, with reference to the accompanying drawings, of which:—

Fig. 1 is an exploded view of a hole cutter embodying the invention, and

- Fig. 2 is a scrap sectional view on the line 2—2
- 60 in Fig. 1 and drawn to a somewhat larger scale than Fig. 1.

Referring now to the drawings, the hole cutter there illustrated includes a body part or head 10 of hexagonal shape having a shank portion 12 by

- 65 means of which it can be mounted in the chuck of a power tool, (the shank portion being formed with three equally spaced axially extending flats but this is not essential). The body part or head is also provided with an axial hole 14 which extends
- 70 through the shank portion and in which can be fitted a twist drill shown in chain-dotted lines). A screwthreaded hole which extends through to the axial hole 14 from one face of the body part or head accommodates a grub screw 16 which can be
- 75 used to clamp the twist drill in position, projecting a required distance from said body part or head. (The effective clamping of the twist drill in the body part, projecting a required distance therefrom, can be facilitated if the shank of the
- 80 twist drill is provided with a slight taper as shown.)

- The body part or head has a screwthreaded spigot portion 18 for the attachment of a cylindrical cutter element, generally indicated 20, which also forms a part of the tool. The cylindrical
- 85 cutter element is provided with serrated teeth 22 in an annular end surface which in the assembled tool is remote from the shank portion of the body part or head. In addition, the cylindrical cutter element is provided with an abutment surface
- 90 formed by an annular collar 24 surrounding said cutter element at its end remote from the serrated teeth. The annular collar is provided with opposed flats 26, only one of which is visible in Fig. 1, by means of which the cutter element can be held by a
- 95 spanner or wrench, or held in a vice, whilst being connected to or disconnected from the body part or head.

- The arrangement is such that the tool can be used for all the jobs for which a conventional hole
- 100 cutter is used, that is to say for example for producing a hole in a relatively thin panel such as in the ducting for electric cables or in the sheet metal of a motor car body. However, the presence of the annular collar prevents the cylindrical cutter element going completely through as it breaks
- 105 through the sheet metal. This is always convenient and of course time saving. It may also be an important safety feature if the job in hand is the forming of a hole in the ducting for electric cables, especially if the cables are live at the time.

- The cutter described is also advantageous over known hole cutters in that the waste core of metal generally does not tend to become jammed in the cylindrical cutter element 20, this being because
- 115 of the particular shape of the serrated teeth 22. As shown in Fig. 2, the serrated teeth are formed with cutting edges 28 which are not disposed in a plane perpendicular to the axis of the cutter but at an angle thereto so that the radially outer edge of each tooth stands axially proud of the remainder
- 120 of the teeth.

- Various modifications may be made and it will of course be understood that the tool may be supplied with a selection of cylindrical cutter elements of different sizes which can be used
- 125 selectively.

CLAIMS

1. A hole cutter including a body part or head

having a shank portion by means of which it can be mounted in the chuck of a power tool the body part or head being capable of being fitted with a twist drill and having a screwthreaded spigot
5 portion for the attachment of a cylindrical cutter element also forming a part of the tool, the cylindrical cutter element being provided with serrated teeth in an annular end surface remote from the shank portion of the body part or head,
10 there being an abutment surface in the form of a raised shoulder stepped back from the serrated annular end surface.

2. A hole cutter according to claim 1, in which the abutment surface is formed by an annular

15 collar surrounding the cylindrical cutter element at its end remote from the serrated teeth.

3. A hole cutter according to claim 2, in which the annular collar surrounding the cylindrical cutter element is provided with opposed flats by
20 means of which the cutter element can be held by a spanner or wrench, or held in a vice, without being connected to or disconnected from the body part or head.

4. A hole cutter constructed, arranged and adapted to be used substantially as hereinbefore described with reference to and as illustrated by
25 the accompanying drawings.

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